

CORE LOG

U. S. GEOLOGICAL SURVEY

USGS Core #3

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DRILL HOLE SE 1/4 SE 1/4 sec. 14, T. 2 S., R. 95 W. ELEVATION 7525' TOTAL DEPTH 302.9'
 LOCATION 6/17/78 DATE COMPLETED 6/18/78 DRILLER McGabe LOGGED BY Kurt Hollocher
 DATE BEGUN 43' of 4" pulled REMARKS: _____
 CASING _____

FROM	TO	THICK- NESS	LITHOLOGIC DESCRIPTION	DEPTH IS CUMULATIVE	CORE
43.0	77.7		Moderately rich oil shale with much admixed tuff or silt. Color is brown to brownish gray. Thin, even bedding with turbation in parts.	43.0-57.6' D	#1
			Tuff 0.1' thick at 45.8'	57.6 - 73.9'	#2
			Tuff 0.75' thick at 63.9-64.65	57.6-74.3 Me	
			Vertical fractures 72-74'	$\Delta' = +0.4'$	
				73.9'-87.6' D	#3
77.7	220.0		Brown to dark brown oil shale interlayered and mixed with much tuff. Abundant silt is possible	74.3 - 86.8' Me	
			Tuffaceous zone with thin tuffs interlayered with rich oil shale.	$\Delta' = -0.8'$	
			78.3 - 79.0', 0.7' thick	87.6' - 103.4' D	#4
			Dark brown oil shale with other things 92.6' - 94.6, 2.0' thick	86.8 - 102.6 Me	
			Dark brown oil shale with other things 95.7 - 98.5, 2.8' thick	$\Delta' = -0.8'$	
			Dark brown oil shale with other things 97.8 - 106.5' 8.7' thick		
			Tuff 0.1' thick at 92.6'		
			Tuff 0.1' thick at 95.2		
			Zone weathered to plastic mud 0.07' thick at 100.6'		
			Zone 50 percent massive gray tuff 108.4-109.8; 1.4' thick	103.4-113.9	#5
			Very dark brown oil shale 109.8-109.9, 0.1' thick	102.6'-113.8	
			Dark brown oil shale interlayered with tuff and leaner oil	$\Delta' = -0.1'$	
			Shale 112.3' - 113.9' - 1.6' thick		
			Tuff 0.1' thick at 116.1	113.9 - 127.6	#6
			Tuff 0.2' thick at 118.6 - 118.8'	113.8 - 127.2	
			Tuff 0.2' thick at 126.2 - 126.4	$\Delta' = -0.4'$	

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 DRILL HOLE USGS Core #3 PAGE 2 OF 5
 LOCATION SE 1/4 SE 1/4 sec. 14, T. 2 S., R. 95 W. ELEVATION 7525 TOTAL DEPTH 302.9
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 CASING 43' REMARKS: _____

FROM	TO	THICK- NESS	LITHOLOGIC DESCRIPTION	DELTA	IS CUMULATIVE
			Tuff 0.2' thick at 128.2- 128.4		-
			Tuff 0.1' thick at 129.9		-
			Tuff 0.2' thick at 130.3- 130.5		
			Tuff 0.15' thick at 130.7-130.85		157.3
			Fractures: 128' - 130'		140.6-157.1
			134.5 - 140' highly fractured		$\Delta' = -0.2'$
			Tuff 0.15' thick at 144.9 - 145.05		
			Tuff 0.25' thick at 147.0 - 147.25		157.3 - 173-7
			Tuff 0.3' thick at 155.3 - 155.6 with some oil shale		157.1 - 173.8
			Tuff 0.1' thick at 156.4		$\Delta' = + 0.1'$
			Tuff 0.5' thick at 157.6-158.1 turbated with oil shale		
			Tuff 0.1' thick at 163.2'		
			Tuff 0.1' thick at 164.7'		
			Tan tuff 0.5' thick at 169.3-169.8 with some oil shale		
			Dark brown rich oil shale interbedded with leaner oil shale and tuff 160.3-162.8,		
			2.5' thick		
			168.6-170.5, 1.9' thick		173.8-187.6
			Tuff 0.1' thick at 174.4		173.0-187.6 Me
			Tuff 0.3' thick at 176.7- 177'		
			Tuff 0.15' thick at 177.4 - 177.55		
			Tuff 0.1' thick at 177.7 - 177.8		
			Tuff 0.1' thick at 178.2'		
			Tuff 0.2' thick at 186.5-186.7 with mixed oil shale		
			Tuff 0.3' thick at 187.0-187.3 with mixed oil shale		

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DRILL HOLE USGS Core #3 PAGE 3 OF 5
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CASING 43' REMARKS: _____

FROM	TO	THICK- NESS	LITHOLOGIC DESCRIPTION	DELTA IS CUMULATIVE	
			Dark brown rich oil shale with tuff 186.8 - 187.6, 0.8'	187.6-204.2	#11
			Tuff 2.25' thick at 187.6-189.85 with minor mixed shale	187.6-204.1	
			Tuff 0.1' thick at 189.9	$\Delta' = -0.1'$	
			60 percent massive tuff zone 190.1-191.3, 1.2' thick with 40 percent dark		
			brown oil shale		
			Tuff 0.15' thick at 191.85'-192.0		
			Tuff 0.15' thick at 192.2-192.35'		
			Tuff 0.2' thick at 193.5 - 193.7'		
			Tuff 0.15' thick at 197.8-197.95		
			Tuff 0.25' thick at 199.85-200.1' with minor shale		
			Tuff 0.15' thick at 203.15 - 203.3'		
			204.0-205.5' highly fractured		
			Tuff 0.15' thick at 205.6-205.75'		
			Tuff 0.1' thick at 206.2	204.2-220.7	#12
			Tuff 0.1' thick at 206.7	204.1-220.5' Me	
			Tuff 0.18' thick at 210.0'210.18'	$\Delta' = + 0.1'$	
			Tuff 0.2' thick at 210.9-211.1		
			Tuff 0.1' thick at 215.3'		
			Tuff 0.1' thick at 215.5'		
			Tuff 0.45' thick at 216.6-217.05 with mixed shale		
			Tuff 0.4' thick at 218.0-218.4 with mixed shale		
			Tuff 0.1' thick at 218.9'	220.7-237.3'	
			Tuff 0.2' thick at 220.0' - 220.2'	220.8-237.4'	#13
				$\Delta' = + 0.1'$	

Drill hole

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ELEVATION 7525 TOTAL DEPTH 302.9'

LOGGED BY Kurt Hollchner

FROM	TO	THICK- NESS	LITHOLOGIC DESCRIPTION	DELTA IS CUMULATIVE
220.0	255.5		Gray to brown oil shale mixed and bedded with much silt or/and tuff. Oil Shale is lean to moderate. Generally evenly bedded with little turbation	237.3-253.9 D
			Tuff 0.2' thick at 234.2'-234.4'	237.4-254.0 Me
			Tuff 1.0' thick at 235.2-236.2'	$\Delta' = + 0.1'$
			Tuff 0.1' thick at 238.3	
			Tuff 0.1' thick at 240.9'	
			Tuff 0.15' thick at 242.05-242	
			Tuff 0.15' thick at 245.1-245.25	
			Tuff 0.2' thick at 245.4-245.6'	
			Tuff 0.3' thick at 252.6-252.9 with some shale	
			Tuff 0.15' thick at 254.5'	
				253.9-270.5 D
255.5	273.4		Gray brown to brown oil shale moderately lean with less silt than above unit.	254.0-270.2 Me
			Shale is somewhat fissile.	$\Delta' = -0.3'$
			Some parts brown to dark brown oil shale with interlayered tuff.	
			Dark brown oil shale with abundant thin tuff layers near base, 256.7-258.4	270.5-286.6'
			Tuff 0.1' thick at 264.3'	270.2-286.6 Me
				$\Delta' = 0$
273.4			Similar to interval 220.0 - 255.5'	
			Tuff 0.1' thick at 276.5'	
			Tuff 0.1' thick at 289.6'	

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LOCATION SE 1/4 SE 1/4 sec. 14, T. 2 S., R. 95 W. ELEVATION 27525 TOTAL DEPTH 302.9'
DATE BEGUN 6/17/78 DATE COMPLETED 6/18/78 DRILLER McCabe LOGGED BY Kurt Hollacher
CASING 43' REMARKS: _____

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